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Development of Norms for the Post-deployment Reintegration Scale

Deniz Fikretoglu

Donald R. McCreary

Defence R&D Canada
Technical Report
DRDC Toronto TR 2010-168
September 2010

Canada

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Principal Author

Original signed by Deniz Fikretoglu

Deniz Fikretoglu

Defence Scientist, Individual Readiness Section

Approved by

Original signed by Stephen Boyne

Stephen Boyne

Head, Individual Readiness Section

Approved for release by

Original signed by Kimberly Wulterkens

Kimberly Wulterkens

For the Chair, Document Review and Library Committee

In conducting the research described in this report, the investigators adhered to the policies and procedures set out in the Tri-Council Policy Statement: Ethical conduct for research involving humans, National Council on Ethics in Human Research, Ottawa, 1998 as issued jointly by the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council of Canada and the Social Sciences and Humanities Research Council of Canada.

Abstract

For military personnel, the time period that immediately follows return from military operations (i.e., the post-deployment reintegration period) is an extremely important window of opportunity for readjusting to in-garrison work roles, for re-connecting with family, and for putting the events of the tour in perspective. Recognizing the importance of successful post-deployment reintegration to optimal operational readiness, Canadian military researchers developed the Army Post-Deployment Reintegration Scale (PDRS) (Blais, Thompson, & McCreary, 2009, *Military Psychology, 21(3)*, 365-386). The PDRS measures positive and negative post-deployment experiences of returning military members in three domains of interest: work, family, and personal. The goal of the current study was to develop norms for the PDRS, using commonly accepted procedures established in psychological testing. These norms can be used to compare the positive and negative reintegration experiences of different groups of Canadian Forces (CF) members to determine whether those groups are having a below average, average or above average reintegration experience in each of the six areas. Where post-deployment reintegration differences between specific subgroups within the CF currently exist, they are rather small in magnitude. However, this does not preclude that larger differences might be found among groups of CF personnel who deploy to future theatres of operation.

Résumé

Pour le personnel militaire, la période qui suit immédiatement le retour du théâtre des opérations militaires (c.-à-d. la période de réintégration après déploiement) est une occasion extrêmement importante de se rajuster au travail en garnison, de renouer avec la famille et de mettre en perspective les événements survenus durant l'affectation. Reconnaissant l'importance d'une réintégration après déploiement réussie pour une disponibilité opérationnelle optimale, les chercheurs militaires canadiens ont élaboré une Échelle de mesure de la réintégration après un déploiement (EMRD) de l'Armée de terre (Blais, Thompson, & McCreary, 2009, *Military Psychology, 21(3)*, 365-386). L'EMRD permet de mesurer à trois niveaux les expériences positives et négatives après déploiement des membres des FC revenant du théâtre des opérations: le travail, la famille et les relations personnelles. Le but de la présente étude est d'élaborer des normes pour l'Échelle de mesure de la réintégration après déploiement (ERAD), en utilisant des procédures généralement acceptées établies dans les tests psychologiques. Ces normes peuvent être utilisées pour comparer les expériences positives et négatives de réintégration de différents groupes de membres des Forces Canadiennes (FC) afin de déterminer si ces groupes ont une expérience de réintégration supérieure à la moyenne, moyenne ou inférieure à la moyenne dans chacun des six secteurs. Lorsqu'il y a des différences de réintégration après déploiement entre des sous-groupes particuliers des FC, elles sont plutôt de nature mineure. Cependant, cela n'empêche pas qu'il puisse y avoir de grandes différences au sein des groupes du personnel des FC qui se déploieront dans des théâtres d'opérations futurs.

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Executive summary

Development of Norms for the Post-deployment Reintegration Scale:

Deniz Fikretoglu; Donald R McCreary; DRDC Toronto TR 2010-168; Defence R&D Canada – Toronto; September 2010.

Background: For military personnel, the time period that immediately follows return from military operations (i.e., the post-deployment reintegration period) is an extremely important window of opportunity for readjusting to in-garrison work roles, for re-connecting with family, and for putting the events of the tour in perspective. Thus, the post-deployment reintegration period is full of challenges in the work, family, and personal domains for returning military personnel. While most of the returning personnel make the necessary adjustments in this transitional period, successfully resuming their lives back home, there is some concern that a sizeable number may experience post-deployment reintegration difficulties in one or more of these domains. Recognizing the importance of successful post-deployment reintegration to optimal operational readiness, Canadian military researchers developed the Army Post-Deployment Reintegration Scale (PDRS) (Blais, Thompson, & McCreary, 2009, *Military Psychology, 21(3),* 365-386). The PDRS measures positive and negative post-deployment experiences of returning military members in three domains of interest: work, family, and personal. The goal of the current study was to develop norms for the PDRS, using commonly accepted procedures established in psychological testing.

Results: We developed separate norms for all six subscales of the PDRS. For most subscales, a group's responses can be classified as Highly Below Average, Below Average, Average, Above Average, and Highly Above Average. The PDRS norms we developed suggest that, so far, Canadian Forces (CF) members who have participated in recent operations report more positive than negative reintegration experiences. Additional findings show that that there are no obvious at-risk groups within the CF; where PDRS differences between specific subgroups exist, they are rather small in magnitude.

Significance: Findings show that CF members are not reporting significant numbers of negative post-deployment experiences within the work, family, or personal domains. The absence of large differences on post-deployment experiences between groups should be similarly reassuring in that there does not seem to be any obvious groups within the CF (reserve versus regular forces, females versus males, augmentees versus non-augmentees) who are particularly at-risk for experiencing reintegration difficulties in the post-deployment period.

Future plans: While these findings are reassuring, the CF should continue to monitor the post-deployment reintegration experiences of military personnel returning from ongoing operations given that at least theoretically, future operational tours may lead to greater difficulties in the post-deployment reintegration period than what was observed here. In addition, even though the number of military personnel reporting very high levels of negative post-deployment experiences in the current study is low, efforts should continue to identify those groups who are most at-risk and identify the individual and organizational factors that might be placing them at greater risk for experiencing post-deployment reintegration difficulties.

Sommaire

Élaboration de normes pour l'Échelle de mesure de la réintégration après déploiement

Deniz Fikretoglu; Donald R McCreary; DRDC Toronto TR 2010-168; R & D pour la défense Canada – Toronto; Septembre 2010.

Contexte : Pour le personnel militaire, la période qui suit immédiatement le retour du théâtre des opérations militaires (c.-à-d. la période de réintégration après déploiement) est une occasion extrêmement importante de se rajuster au travail en garnison, de renouer avec la famille et de mettre en perspective les événements survenus durant l'affectation. Par conséquent, la période de réintégration après déploiement comporte de nombreux défis au travail, en famille et dans les relations personnelles pour le personnel militaire revenant du théâtre des opérations. Bien que la plupart des membres des FC revenant du théâtre des opérations effectuent le rajustement nécessaire durant cette période de transition, reprenant ainsi avec succès leur vie familiale, il y a des risques qu'un nombre considérable d'entre eux aient des difficultés de réintégration après déploiement dans un ou plusieurs de ces secteurs. Reconnaissant l'importance d'une réintégration après déploiement réussie pour une disponibilité opérationnelle optimale, les chercheurs militaires canadiens ont élaboré une Échelle de mesure de la réintégration après déploiement (EMRD) de l'Armée de terre (Blais, Thompson, & McCreary, 2009, *Military Psychology, 21(3)*, 365-386). L'EMRD permet de mesurer à trois niveaux les expériences positives et négatives de réintégration après déploiement des membres des FC revenant du théâtre des opérations : le travail, la famille et les relations personnelles. Le but de la présente étude est d'élaborer des normes pour l'Échelle de mesure de la réintégration après déploiement (ERAD), en utilisant des procédures généralement acceptées établies dans les tests psychologiques.

Résultats : Nous avons élaboré des normes distinctes pour les six sous-échelles de l'EMRD. Pour la plupart des sous-échelles, les réponses d'un groupe peuvent être regroupées dans les catégories suivantes en ce qui concerne l'expérience de réintégration : très inférieure à la moyenne, inférieure à la moyenne, moyenne, supérieure à la moyenne et très supérieure à la moyenne. Les normes de l'EMRD que nous avons élaborées indiquent qu'à ce jour, les membres des Forces Canadiennes (FC) qui ont participé aux opérations récentes font état d'expériences de réintégrations plus positives que négatives. D'autres conclusions montrent qu'il n'y a pas de groupes manifestement à risque au sein des FC. Lorsqu'il y a des différences d'EMRD entre deux sous-groupes donnés, elles sont plutôt de nature mineure.

Importance : Les conclusions indiquent qu'après un déploiement, les membres des FC ne font pas état d'un grand nombre d'expériences négatives de réintégration. L'absence de grandes différences entre les groupes en ce qui concerne les expériences de réintégration après déploiement devrait être tout aussi rassurante que le fait qu'il ne semble pas y avoir de groupes manifestement à risque au sein des FC (Réserve par rapport à Force régulière, femmes par rapport aux hommes, renforts par rapport aux autres militaires) qui seraient prédisposés à avoir des difficultés durant la période de réintégration après déploiement.

Recherches futures : Bien que ces conclusions soient rassurantes, les FC doivent continuer à suivre de près les expériences de réintégration après déploiement des militaires revenant du

théâtre des opérations, compte tenu du fait que, du moins théoriquement, les futures affectations à des opérations pourraient entraîner des difficultés durant la période de réintégration après déploiement par rapport à la situation actuelle. De plus, malgré le faible nombre de militaires faisant état de hauts niveaux d'expériences négatives de réintégration après déploiement dans la présente étude, on doit poursuivre les efforts visant à déterminer les groupes qui sont le plus à risque ainsi que les facteurs individuels ou organisationnels qui pourraient augmenter le risque d'avoir des difficultés de réintégration après déploiement.

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Table of contents

List of figures

List of tables

Acknowledgements

We wish to thank the Chief of Land Staff Land Personnel Concepts and Policy Section, as well as the Operational Effectiveness and Leadership Group at Director General Military Personnel Research & Analysis, for their ongoing support for the post-deployment reintegration project.

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Introduction

Background

For military personnel, the time period that immediately follows return from military operations (i.e., the post-deployment reintegration period) is an extremely important window of opportunity for decompressing from the stress and high tempo of the deployment. It also is an important time for readjusting to in-garrison work roles, for re-connecting with family and friends and resuming family responsibilities, and for putting the events of the tour in perspective and reintegrating into the community/society (Rosebush, 1998). Thus, the post-deployment reintegration period is full of challenges in the work, family, and personal domains for returning military personnel. While most of the returning personnel make the necessary adjustments in this transitional period, successfully resuming their lives back home, there is some concern that a sizeable number may experience post-deployment reintegration difficulties in one or more of these domains. Consider, for instance, the family domain. During the military member's absence, spouses may have taken over additional responsibilities, children may have entered a new developmental stage, and new routines may have been established, all of which pose adjustment challenges to the returning military member (Pincus, House, Christenson, & Adler, 2001; Sayers, Farrow, Ross, & Oslin, 2009; Thompson & Gignac, 2002). Within the work domain, unit reconfigurations and new postings may pose significant organizational challenges to returning military members; if posted to a new unit (whose members did not deploy to the same tour), the returning military member may experience lack of support from his/her peers at work (Thompson & Gignac, 2002). Given the importance of unit support for psychological and organization outcomes (Leiter, Clark, & Durup, 1994; Pincus, et al., 2001), this may place the returning member at an increased risk for both increased psychological distress and decreased organizational commitment. Also, within the work domain, military members may compare their roles and responsibilities while on tour and in garrison upon return, and find in-garrison duties not as stimulating, or even boring, once again leading to a decreased sense of organizational commitment. Finally, within the personal domain returning members may experience difficulties reconciling what they have seen and experienced while on tour (e.g., devastating poverty, lack of personal freedoms and rights for minority groups, etc.) with the values, freedoms, and resources back home.

Despite increasing recognition that the post-deployment period is an important point along the operational readiness continuum for recovery, reintegration, and return to readiness (Doyle & Peterson, 2005), there has been relatively little scientific research on post-deployment reintegration experiences, even in the context of ongoing operational missions in Afghanistan and Iraq. Furthermore, the scant research that does exist tends to suffer from important limitations: First, it tends to focus on one domain (personal, or work, or family) at a time and fails to provide a holistic picture of the post-deployment experiences across multiple domains. Second, the existing literature tends to look at post-deployment reintegration difficulties as a function of mental health symptoms such as depression, anxiety, and substance use. This approach makes the implicit assumption that military personnel who are not experiencing mental health symptoms should be able to successfully reintegrate back to their lives, which is an untested assumption that goes against anecdotal evidence that even those free of mental health symptoms experience difficulties in post-deployment reintegration. Third, despite emerging evidence that returning

personnel may experience significant positive experiences such as increased happiness, self-esteem, and renewed sense of purpose and meaning in the post-deployment period, existing post-deployment reintegration research to date has focused almost exclusively on negative experiences such as feeling disconnected from family and friends, experiencing boredom at work, and difficulty reconciling deployment experiences with post-deployment life.

Recognizing the importance of successful post-deployment reintegration to optimal operational readiness, and attempting to address the gaps and limitations of existing scientific literature on post-deployment reintegration, Canadian military researchers developed the Army Post-Deployment Reintegration Scale (PDRS) (Blais, Thompson, & McCreary, 2009). The PDRS aims to measure both positive and negative post-deployment experiences of returning military members in three domains of interest: work, family, and personal. Extensive research has supported the internal reliability, and the criterion and construct validity of the PDRS (Blais, et al., 2009).

Although the PDRS has been included in several cycles of the Canadian Forces' Human Dimensions of Operations (HDO) Survey, descriptions of the "typical" or "normative" post-deployment experiences of CF personnel have not been available. To describe "typical" or "normative" post-deployment experiences in the CF, norms for the PDRS need to be developed and made available to end-users. Such norms provide a frame of reference for interpreting the scores of particular units to what might be considered the average or typical score for the CF (Nunnally, 1967). Using norms, one is able to compare individual scores to what might be considered an "average", "typical", or "normal" score (i.e., the norm). Developing and providing end-users norms on the PDRS permits comparisons on post-deployment experiences between tours, and provides commanders with a frame of reference for comparing their unit's post-deployment experiences with other units' experiences at similar or different time periods. The anticipated end-users for the PDRS norms are primarily Personnel Selection Officers (PSOs) who in turn provide commanders (both in theatre and in garrison) with information on how their units are doing on a number of post-deployment outcomes, including post-deployment work, family, and personal reintegration. Additional potential end-users of PDRS norms are Canadian and other allied country military mental health researchers who may want to use the PDRS in research on psychological adjustment in the post-deployment period.

The purpose of this report is to develop CF norms for the PDRS and make them available to these end-users in an easy to read technical report format.

Methods

Participants and Procedures

Three thousand and six CF personnel who had recently returned from Operation ATHENA in Afghanistan participated in the present study. "Operation ATHENA is Canada's participation in the International Security Assistance Force (ISAF) in Afghanistan. ISAF was formed under United Nations (U.N.) Security Council Resolution 1386 of 20 December 2001 with a mandate to maintain security in and around Kabul so employees of the Afghan Interim Authority (the body governing Afghanistan under the terms of the Bonn Agreement) and the U.N. could operate in a secure environment" (National Defence, 2010). Phase 1 started in August 2003 when ISAF became a North Atlantic Treaty Organization (NATO) mission and continued until July 2005. Phase I was comprised of 4 rotations (Rotos 0, 1, 2, & 3). Phase II started in August 2005 when ISAF began to extend its operations beyond Kabul, and to date there have been 9 rotations (Rotos 0 - 8). Participants for the present study included those who deployed during Rotos 2 (August '04 to February '05) and 3 (February '05 to July '05) of Phase I [Kabul] (n = 739 soldiers) and those who deployed during Rotos 0 (August '05 to February '06), 1(February '06 to July '06), and 2 (August '06 to February '07) of Phase II [Kandahar] (n = 2267).

Table 1: Demographic Characteristics of the Norming Sample (N = 3006)

Variable	*Category*	*N*	*%*
Military Status	Regular	2801	93.2
	Reserve	158	5.3
Military Rank	Private	340	11.3
	Junior Non-Commissioned Member	1655	55.1
	Sergeant or higher	949	31.6
Augmentee Status	Augmentee	597	19.9
	Non-Augmentee	2268	75.4
Tours, total	Up to 1	1127	37.5
	2	707	23.5
	3	504	16.8
	4+	599	19.9
Rotation	Athena Phase I Roto 2 [Kabul]	523	17.4
	Athena Phase I Roto 3 [Kabul]	216	7.2
	Athena Phase II Roto 0 [Kandahar]	421	14.0
	Athena Phase II Roto 1 [Kandahar]	979	32.6
	Athena Phase II Roto 2 [Kandahar]	867	28.8
Gender	Male	2663	88.6
	Female	287	9.5
Language	Anglophone	2615	87.0
	Francophone	341	11.3
Marital Status	Single	1166	38.8
	Married	1788	59.5
Children	0	1584	52.7
	1	492	16.4
	2	559	18.6
	3+	290	9.6

Note: Numbers and percentages are rounded. Variables for which the categories do not add up to 100% have missing values, which have not been included in this table due to space limitations.

Participants completed the PDRS as part of the HDO Project. The HDO is administered by the Director General Military Personnel Research & Analysis (DGMPRA) for the Chief of the Land Staff to assess various human aspects of operations across the deployment cycle. The post-deployment HDO questionnaire package (including the PDRS) is typically completed in mass-testing sessions in training rooms in military bases. At each session, a Base Personnel Selection Officer provides an introduction and answers questions that may come up in completing the measures included in the package. Individual questionnaire packages are mailed to augmentees and those who have been transferred to new units. Packages are available in English and French. Demographic characteristics of the study sample are reported in Table 1. The sample was comprised primarily of Anglophone (n = 2615, 87%), male (n = 2663, 88.6%) regular force (n = 2801, 93.2%) members.

Measures

Post-deployment Reintegration Scale:

The PDRS was developed and extensively validated for use within the CF (Blais, et al., 2009). It measures both positive and negative aspects of post-deployment reintegration in the personal, family, and work domains. The full scale has 36 items. Within each of the three domains, 6 items assess negative and 6 items assess positive aspects of reintegration; thus, there are 6 PDRS subscales (Personal Positive (PP), Personal Negative (PN), Family Positive (FP), Family Negative (FN), Work Positive (WP), Work Negative (WN)). Each item on the scale is rated on a 5-point Likert scale ranging from 1 = Not at all true to 5 = Completely true. Scores for each of the six PDRS subscales are computed separately by creating a mean score for each. Initial research on the PDRS has found acceptable internal consistency reliability estimates and support for the factorial validity of the PDRS (Blais, et al., 2009). A copy of the full instrument (in both English and French) is provided in Annex A.

The Norming Procedure and Statistical Analyses

Initial Data Screening

Standard data screening procedures were used with the large PDRS dataset. Prior to establishing any norms, the data set for each of the six subscales of the PDRS was first examined for missing data, extreme cases, and response patterns. Then, the distribution of the data for each subscale was assessed for univariate normality. Although not necessary for norm development, data with a normal (or near-normal) distribution is considered ideal; normal (or close to normal) data distribution is also a basic assumption of most inferential statistical analyses. To assess data distribution on each subscale, we followed established guidelines (Tabachnik & Fidell, 1996): 1) we obtained histograms with normality curves imposed, and visually inspected the data distribution; 2) we calculated two indices of univariate normality - skewness and kurtosis. “Skewness is a measure of the asymmetry of a distribution. The normal distribution is symmetric and has a skewness value of zero. A distribution with a significant positive skewness has a long right tail. A distribution with a significant negative skewness has a long left tail. As a guideline, a skewness value more than twice its standard error (SE) is taken to indicate a departure from symmetry. Kurtosis is a measure of the extent to which observations cluster around a central

point. For a normal distribution, the value of the kurtosis statistic is zero. Positive kurtosis indicates that the observations cluster more and have longer tails than those in the normal distribution, and negative kurtosis indicates that the observations cluster less and have shorter tails"(SPSS for Windows 17.0.0, 2008).

Both skewness and kurtosis values are zero when a distribution is perfectly normal (Tabachnik & Fidell, 1996). Significance tests for skewness and kurtosis are readily available and are calculated in a similar manner. The test is based on the value of skewness (or kurtosis) divided by its SE. However, SE is influenced by sample size, such that larger samples tend to have smaller SEs. Because of this, one is more likely to find a statistically significant deviation from normality in larger, as opposed to smaller, samples. As Tabachnik & Fidell (1996, p.80) note, "…with large samples, the significance level of skewness is not as important as its actual size (worse the farther from zero) and the visual appearance of distribution. In a large sample, the impact of departure from zero kurtosis also diminishes. For example, underestimates of variance associated with positive kurtosis … disappear with samples of 100 or more cases; with negative kurtosis, underestimation of variance disappears with samples of 200 or more". Thus, while we computed the skewness and kurtosis statistics, we rely more on the visual appearance of distributions rather than on the statistical significance.

Norm Development

In psychometric testing, norms provide a frame of reference for interpreting particular scores (Nunnally, 1967). For instance, using PDRS norms, one would be able to compare a particular unit's scores to what might be considered the "average", "typical", or "normal" PDRS scores in the CF (i.e., the norm). There are a number of established procedures for developing norms (Cronbach, 1984). These procedures typically include ensuring that the sample used in developing the norms is large enough and representative of the target population (whose scores will be compared to the norms) and computing the mean and standard deviation (SD) of the scales being normed. A prior report on developing norms for some of the other psychological measures included in the HDO (Brown, 2005) was based on these established procedures. In developing norms for the PDRS, we followed the same procedures adopted in the prior HDO norming report.

Specifically, we developed norms for the PDRS by obtaining the mean and the SD for each of the six subscales of the PDRS. For each subscale, we then used the mean and the SD to calculate the range of scores that would fall into one of 5 possible ranges as follows:

a. Highly Below Average: includes scores from 2.01 to 3.00 SDs below the mean. In some cases, three SDs, or less, was below the lowest possible score of 1; therefore, there was no Highly Below Average range;

b. Below Average: includes scores ranging from 1.01 to 2.00 SDs below the mean;

c. Average: includes scores ranging from one SD above the mean to one SD below the mean. This range was calculated first, and then either the Below or Above ranges were calculated;

d. Above Average: includes scores from 1.01 to 2.00 SDs above the mean; and

e. Highly Above Average: includes scores ranging from 2.01 to 3.00 SDs above the mean. In some cases, the scores three SDs above the mean was above the highest possible value of 5 and could not be calculated.

In addition to the means and the SDs, we obtained the 95% confidence intervals (CI) around the means. The 95% CI gives a range of values around each mean that is likely to include the "true" mean; more specifically, the "true" mean is considered to fall within this range 95 times out of 100.

Ways to Use These Norms in Future Deployments

Anticipating that commanders of future deployments may wish to compare scores on the PDRS from their deployment to established norms, we will provide examples of two ways of conducting such comparisons in the Results section (first by visually comparing scores to established norms and second by way of formal statistical comparisons).

Example of a Visual Comparison.

Visual comparisons are simple, coarse ways of determining whether a group's post-deployment reintegration experiences are average or typical and, if they are not, whether they are above or below average. This typically involves comparing the means for a given group to the Well Below Average, Below Average, Average, Above Average, or Well Above Average groups we described above. For example, if the PN mean for a given rotation was 3.07, we would go to the table for the comparison group of our choice (e.g., the whole CF, Regular Force, Non-Augmentee, French) and determine which of the five categories that mean falls into. This gives the user a general idea about a group's experiences compared to the reference group.

Example of a Statistical Comparison.

For statistical comparisons, as our first example, we will take a specific deployment (Roto = Operation ATHENA Phase I Roto 2 [Kabul]) and for each subscale of the PDRS, compare the average score on the subscale for that deployment to the norm for that subscale *for the whole sample*. We use the one sample t-test, with *the whole sample norm acting as the test value*, and use a Bonferroni correction (i.e., $p < 0.05 / 6$ tests = a minimum p-value of 0.008 to achieve statistical significance) in order to control for the fact that we are conducting six statistical tests.

Anticipating that commanders of future deployments may wish to compare scores on the PDRS *for specific subgroups* from their deployment to established norms *for those same subgroups*, we provide an additional example to show how such comparison can be made. Thus, as our second example, we will take a specific subgroup (Regular Forces) from a specific deployment (Operation ATHENA Phase I Roto 2 [Kabul]) and compare their scores on each of the subscales of the PDRS to established norms for that specific subgroup (Regular Forces) from the whole sample. Once again, we use the one sample t-test, with the norm established for that subgroup from the whole sample acting as the test value, and use the same Bonferroni correction (i.e., a minimum p-value of .008).

For both examples, if we find a statistically significant difference, we then calculate the magnitude of that difference, by estimating the effect size, using the basic formula of: d (effect size) = mean difference between the comparison group score and the norm for the reference group/SD for the comparison group. Effects sizes of .2, .5, and .8 are traditionally viewed as representing small, medium, and large effect sizes, respectively. (It should be noted that although an assumption of the t-test is that the variable of interest is normally distributed, it is agreed that with moderate or large enough sample sizes, this assumption may be violated without significantly affecting the accuracy of the results (Witte & Witte, 1999).

Results

Data Screening

Initial screening of the data revealed that there were 3006 valid responses in the dataset. Of these, 330 (10.98%) had at least one missing value on the 36-item PDRS. Of those with at least one missing value on the PDRS, the majority (n = 290, 87.88%) had between 1 and 3 missing values. Among the minority that had 4 or more missing values (n = 40), 20 cases had missing values on all PDRS items (i.e., they did not complete the PDRS). We followed established guidelines for handling missing data in large datasets (Tabachnik & Fidell, 1996): we created a dummy variable to distinguish between those with and without missing data on the PDRS, and then looked at whether or not these two groups differed on any of 18 key sociodemographic or military variables. After correcting for multiple comparisons, no significant differences were found, suggesting that, with the exception of the 40 people who did not complete the PDRS at all, the data were missing completely at random. Based on this, we decided to not pursue formal missing data replacement methods. Instead, we looked at each of the subscales of the PDRS separately, and found that there were 23, 20, 26, 29, 21, 22 cases with 4+ missing values on the WN, WP, FN, FP, PN, and PP subscales, respectively. These cases were then removed from the norm development. Removing the cases with 4+ missing values resulted in 2983, 2986, 2980, 2977, 2985, 2984 valid cases on the WN, WP, FN, FP, PN, and PP subscales, respectively.

Normality Assessment

The results from the normality assessment of data for the whole sample are presented in Table 2 and Figures 1 - 6. As can be seen from the skewness and kurtosis statistics in Table 2, as well as the histograms with normality curves imposed, the PDRS scales show departures from a normal distribution in most cases. The subscales that show the most departure from normality are the three negative reintegration scales. Normality assessment for subgroups was also conducted but due to space limitations, is not included in the current report. For subgroups (e.g., males vs. females), the data continued to show deviations from normality, although as might be expected due to the smaller sample sizes (and resulting larger SEs for skewness and kurtosis), the skewness and kurtosis test values were smaller compared to those for the whole sample.

Table 2: Skewness and Kurtosis Statistics for Each PDRS Subscale (N=3006)

PDRS	*Skewness*	*Skewness Standard Error*	*Skewness Test*	*Kurtosis*	*Kurtosis Standard Error*	*Kurtosis Test*
WN	.219	.045	4.867	-.874	.090	9.711
WP	-.453	.045	-10.067	-.008	.090	.089
FN	.930	.045	20.667	.195	.090	2.167
FP	-.277	.045	-6.156	-.620	.090	6.889
PN	1.143	.045	25.400	.810	.090	9.000
PP	-.480	.045	-10.667	-.254	.090	2.822

Note: Skewness values of less than three and kurtosis values of less than ten are not considered serious enough departures from normality to warrant further attention (Kline, 2005).

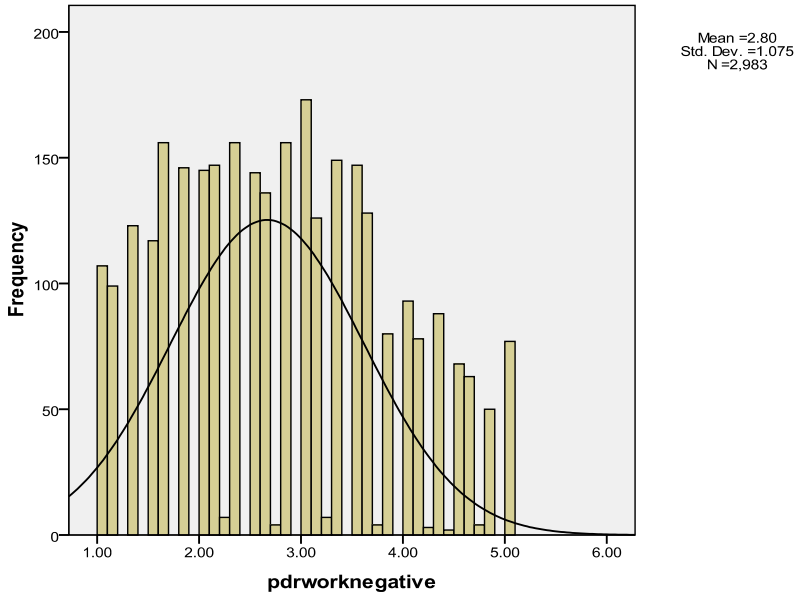

Figure 1: Histogram with normality curve for Work Negative (WN) Scale.

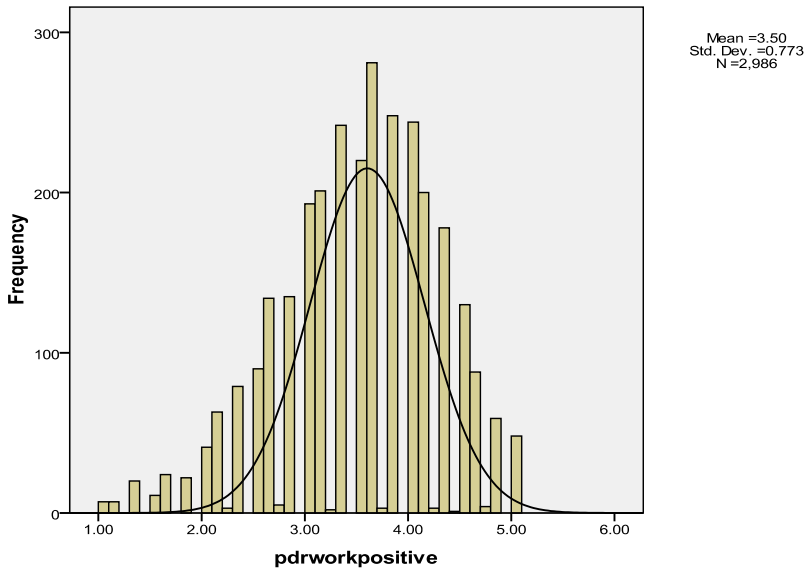

Figure 2: Histogram with normality curve for the Work Positive (WP) Scale

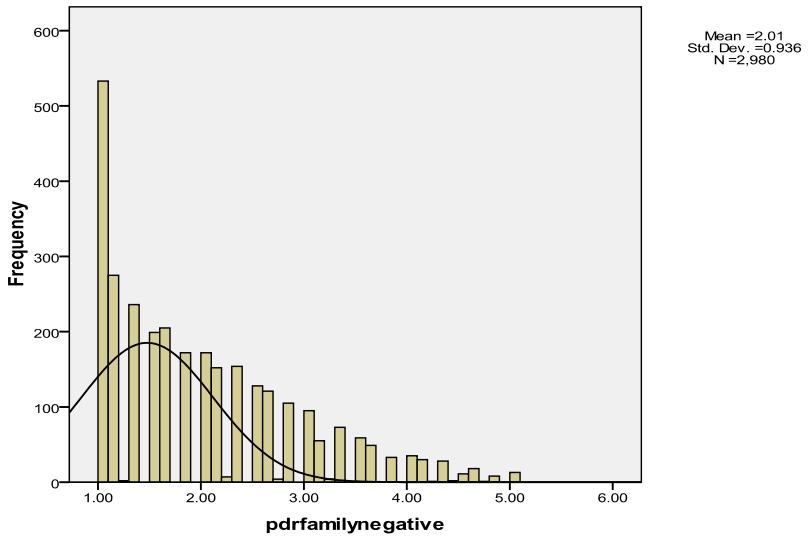

Figure 3: Histogram with normality curve for Family Negative (FN) Scale.

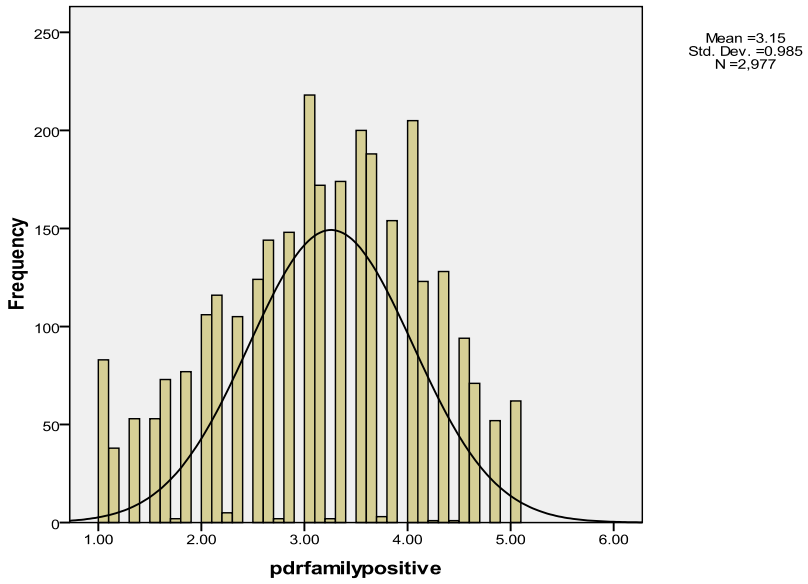

Figure 4: Histogram with normality curve for Family Positive (FP) Scale.

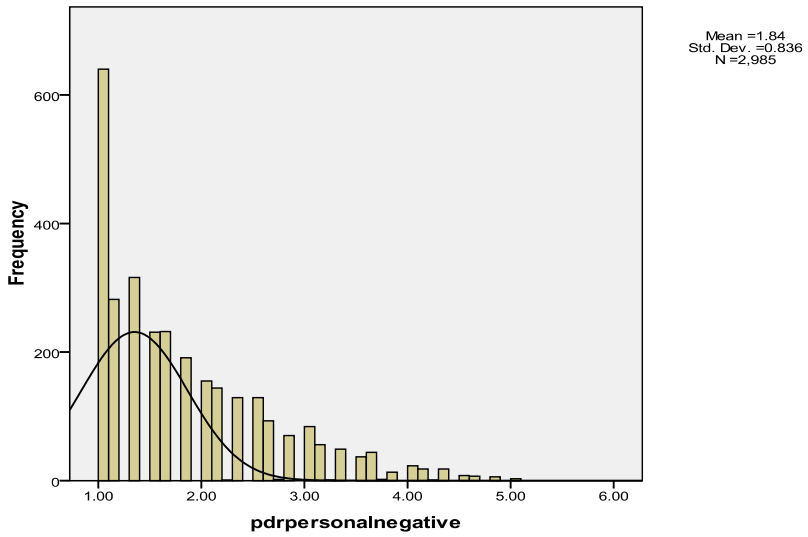

Figure 5: Histogram with normality curve for Personal Negative (PN) Scale.

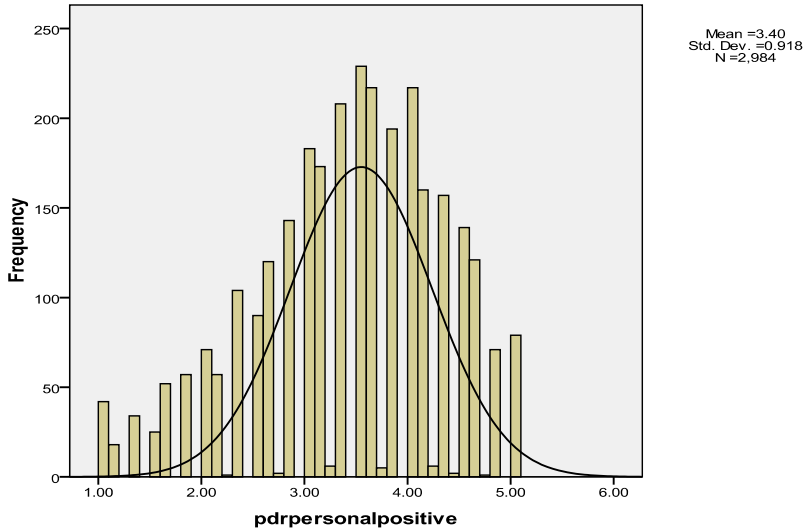

Figure 6: Histogram with normality curve for Personal Positive (PP) Scale.

Describing the Norms for the Whole Sample and Subgroups

For each subscale, we calculated the mean (i.e., arithmetic average). In calculating the mean, we specified that a minimum of three valid responses were required, which allowed us to retain those cases with up to three missing values on each of the PDRS subscales in our analyses. We calculated norms for the whole sample first and then calculated norms for subgroups of interest defined by the following variables: Rotation, Gender, Military Status (Regular Force vs.

Reservist), Augmentee Status, and Language of the Survey. For both the whole sample as well as the various subgroups of interest, the scores on the PDRS scales suggested that overall, Canadian Forces returning from the early rotations (i.e., Rotos) of the Afghanistan mission (i.e., Rotos 2 and 3 of Phase I [Kabul] and Rotos 0, 1, and 2 of Phase II [Kandahar]) report more positive than negative post-deployment reintegration experiences in the work, family, and personal domains. The scores for negative post-deployment reintegration experiences in the family and personal domains were particularly low (in or below the "slightly true" range), suggesting relatively few problems in these domains for soldiers returning from these missions. These results are displayed in Tables 3 - 17. In each table, we present the sample size, arithmetic mean, SD, and 95% confidence interval for each of the PDRS subscales. We then present the range of scores on each of the PDRS subscales that coincide with having a reintegration experience that is highly below average, below average, average, above average, and highly above average.

Table 3: Norms for the Whole Sample.

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	2983	2.80(1.08)	2.76 - 2.83	n/a	1.00 - 1.71	1.72 - 3.88	3.89 - 4.96	4.97 - 5.00
WP	2986	3.50(0.77)	3.47 - 3.53	1.00 - .95	1.96 - 2.72	2.73 - 4.27	4.28 - 5.00	n/a
FN	2980	2.01(0.94)	1.98 - 2.05	n/a	1.00 - 1.06	1.07 - 2.95	2.96 - 3.89	3.90 - 5.00
FP	2977	3.15(0.99)	3.11 - 3.18	1.00 - 1.17	1.17 - 2.15	2.16 - 4.14	4.15 - 5.00	n/a
PN	2985	1.84(0.84)	1.81 - 1.87	n/a	n/a	1.00 - 2.68	2.69 - 3.52	3.53 - 5.00
PP	2984	3.40(0.92)	3.37 - 3.44	1.00 - 1.55	1.56 - 2.47	2.48 - 4.32	4.33 - 5.00	n/a

Table 4: Number and Percentage of Whole Sample in Each Norm Category.

PDRS		*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
	N	*N (%)*	*N (%)*	*N (%)*	*N (%)*	*N (%)*
WN	2983	n/a	602 (20.2%)	1855 (62.2%)	449 (15.1%)	77 (2.6%)
WP	2986	91 (3%)	410 (13.7%)	1977 (66.2%)	508 (17%)	n/a
FN	2980	n/a	533 (17.9%)	1932 (64.8%)	368 (12.3%)	147 (4.9%)
FP	2977	121 (4.1%)	364 (12.2%)	1960 (65.8%)	532 (17.9)	n/a
PN	2985	n/a	n/a	2543 (85.2%)	299 (10.0%)	143 (4.8%)
PP	2984	119 (4.0%)	342 (11.5%)	1953 (65.4%)	570 (19.1%)	n/a

As can be seen from Tables 3 and 4, overall, across the work, family, and personal domains, the sample reported more positive than negative post-deployment reintegration experiences. Only a

very small percentage of the sample reported a large number of highly above average negative (2.6%, 4.9%, 4.8%) or highly below average positive (3%, 4.1%, 4%) post-deployment experiences across the three domains.

As can be seen in Tables 5 - 9, subsamples from each of the five rotations similarly reported more positive than negative post-deployment experiences.

Table 5: Norms by Rotation, Rotation = Operation ATHENA Roto 2 [Kabul].

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	519	2.76(1.08)	2.66 - 2.85	n/a	1.00-1.67	1.68-3.84	3.85-4.92	4.93-5.00
WP	519	3.37(0.82)	3.30 - 3.44	1.00-1.72	1.73-2.54	2.55-4.19	4.20-5.00	n/a
FN	515	1.89(0.91)	1.82 - 1.97	n/a	n/a	1.00-2.80	2.81-3.71	3.72-4.62
FP	515	3.07(1.03)	2.98 - 3.16	1.00	1.01-2.03	2.04-4.10	4.11-5.00	n/a
PN	519	1.57(0.67)	1.51 - 1.62	n/a	n/a	1.00-2.24	2.25-2.91	2.92-3.58
PP	519	3.33(0.94)	3.25 - 3.41	1.00-1.44	1.45-2.38	2.39-4.27	4.28-5.00	n/a

Table 6: Norms by Rotation, Rotation = Operation ATHENA Roto 3 [Kabul].

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	216	2.30(1.04)	2.16 - 2.44	n/a	1.00-1.25	1.26-3.34	3.35-4.38	4.39-5.00
WP	216	3.48(0.78)	3.38 - 3.59	1.14-1.91	1.92-2.69	2.70-4.26	4.27-5.00	n/a
FN	216	1.77(0.89)	1.65 - 1.89	n/a	n/a	1.00-2.66	2.67-3.55	3.56-4.44
FP	215	3.20(0.98)	3.07 - 3.33	1.00-1.23	1.24-2.21	2.22-4.18	4.19-5.00	n/a
PN	216	1.47(0.63)	1.39 - 1.56	n/a	n/a	1.00-2.10	2.11-2.73	2.74-3.36
PP	216	3.45(0.93)	3.33 - 3.58	1.00-1.59	1.59-2.51	2.52-4.38	4.39-5.00	n/a

Table 7: Norms by Rotation, Rotation = Operation ATHENA Roto 0 [Kandahar].

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	419	2.35(1.00)	2.25 - 2.45	n/a	1.00-1.34	1.35-3.35	3.36-4.35	4.36-5.00
WP	420	3.42(0.82)	3.34 - 3.50	1.00-1.77	1.78-2.59	2.60-4.24	4.25-5.00	n/a
FN	419	1.84(0.91)	1.76 - 1.93	n/a	n/a	1.00-2.75	2.76-3.66	3.67-4.57
FP	420	3.20(0.99)	3.11 - 3.30	1.00-1.21	1.22-2.20	2.21-4.19	4.20-5.00	n/a
PN	419	1.61(0.74)	1.54 - 1.68	n/a	n/a	1.00-2.35	2.36-3.09	3.10-3.83
PP	419	3.47(0.94)	3.38 - 3.56	1.00-1.58	1.59-2.52	2.53-4.41	4.42-5.00	n/a

Table 8: Norms by Rotation, Rotation = Operation ATHENA Roto 1 [Kandahar].

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	964	3.09(1.04)	3.02 - 3.16	1.00	1.01-2.04	2.05-4.13	4.14-5.00	n/a
WP	965	3.57(0.73)	3.52 - 3.62	1.38-2.10	2.11-2.83	2.84-4.30	4.31-5.00	n/a
FN	964	2.18(0.95)	2.12 - 2.24	n/a	1.00-1.22	1.23-3.13	3.14-4.08	4.09-5.00
FP	962	3.10(0.97)	3.04 - 3.16	1.00-1.15	1.16-2.12	2.13-4.07	4.08-5.00	n/a
PN	965	2.09(0.89)	2.03 - 2.14	n/a	1.00-1.19	1.20-2.98	2.99-3.87	3.88-4.76
PP	964	3.41(0.90)	3.36 - 3.47	1.00-1.60	1.61-2.50	2.51-4.31	4.32-5.00	n/a

Table 9: Norms by Rotation, Rotation = Operation ATHENA Roto 2 [Kandahar].

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval Range*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	865	2.83(1.04)	2.76 - 2.90	n/a	1.00-1.78	1.79-3.87	3.88-4.91	4.92-5.00
WP	866	3.55(0.75)	3.50 - 3.60	1.00 -2.04	2.05-2.79	2.80-4.30	4.31-5.00	n/a
FN	866	2.04(0.92)	1.98 - 2.10	n/a	1.00-1.11	1.12-2.96	2.97-3.88	3.89-4.80
FP	865	3.21(0.97)	3.15 - 3.28	1.00 -1.26	1.27-2.23	2.24-4.18	4.19-5.00	n/a
PN	866	1.92(1.92)	1.86 - 1.98	n/a	1.00-1.06	1.07-2.77	2.78-3.62	3.63-4.47
PP	866	3.39(0.92)	3.33 - 3.45	1.00 -1.54	1.55-2.46	2.47-4.31	4.32-5.00	n/a

As can be seen from Tables 10 and 11, males and females reported very similar levels of positive and negative post-deployment experiences. In general, and similar to the whole sample, males and females reported more positive than negative experiences.

Table 10: Norms by Sex, Sex = Men

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval Range*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	2642	2.82(1.08)	2.78 - 2.86	n/a	1.00-1.73	1.74-3.90	3.91-4.98	4.99-5.00
WP	2645	3.51(0.77)	3.48 - 3.54	1.20-1.96	1.97-2.73	2.74-4.28	4.29-5.00	n/a
FN	2639	2.01(0.94)	1.97 - 2.05	n/a	1.00-1.06	1.07-2.95	2.96-3.89	3.90-4.83
FP	2637	3.15(0.98)	3.12 - 3.19	1.00-1.18	1.19-2.16	2.17-4.13	4.14-5.00	n/a
PN	2644	1.82(0.83)	1.79 - 1.86	n/a	n/a	1.00-2.65	2.66-3.48	3.49-4.31
PP	2643	3.38(0.91)	3.35 - 3.42	1.00-1.55	1.56-2.46	2.47-4.29	4.30-5.00	n/a

Table 11*: Norms By Sex, Sex = Women*

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval Range*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	287	2.52(1.03)	2.41 - 2.65	n/a	1.00-1.48	1.49-3.55	3.56-4.58	4.59-5.00
WP	287	3.45(0.76)	3.36 - 3.54	1.17-1.92	1.93-2.68	2.69-4.21	4.22-4.97	4.98-5.00
FN	287	2.01(0.93)	1.90 - 2.12	n/a	1.00-1.07	1.08-2.94	2.95-3.87	3.88-4.80
FP	287	3.15(0.99)	3.03 - 3.27	1.00-1.16	1.17-2.15	2.16-4.14	4.15-5.00	n/a
PN	287	1.91(0.85)	1.81 - 2.01	n/a	1.00-1.05	1.06-2.76	2.77-3.61	3.62-4.46
PP	287	3.66(0.88)	3.56 - 3.76	1.00-1.89	1.90-2.77	2.78-4.54	4.55-5.00	n/a

Tables 12 and 13 present norms for the Regular Force and Reservists, while Tables 14 and 15 present norms for the Augmentees and Non-Augmentees.

Consider, for example, the reintegration experiences of Augmentees. As can be seen from Tables 14 and 15, both augmentees and non-augmentees reported more positive than negative experiences. Where there seemed to be – albeit small – differences between these groups, they seemed to be in the direction of augmentees reporting fewer negative experiences. These results should be reassuring in that they fail to support the notion that augmentees may experience greater post-deployment adjustment difficulties than non-augmentees.

Table 12: Norms by Status, Status = Regular Force

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	2784	2.80(1.08)	2.75 - 2.83	n/a	1.00-1.71	1.72-3.88	3.89-4.96	4.97-5.00
WP	2786	3.49(0.77)	3.47 - 3.52	1.18-1.94	1.95-2.71	2.72-4.26	4.27-5.00	n/a
FN	2780	2.01(0.94)	1.98 - 2.05	n/a	1.00-1.06	1.07-2.95	2.96-3.89	3.90-4.83
FP	2777	3.16(0.99)	3.13 - 3.20	1.00-1.17	1.18-2.16	2.17-4.15	4.16-5.00	n/a
PN	2785	1.83(0.83)	1.80 - 1.86	n/a	n/a	1.00-2.66	2.67-3.49	3.50-4.32
PP	2784	3.40(0.92)	3.36 - 3.43	1.00-1.55	1.56-2.47	2.48-4.32	4.33-5.00	n/a

Table 13: Norms by Status, Status = Reservist

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	154	2.78(0.98)	2.62 - 2.94	n/a	1.00-1.79	1.80-3.76	3.77-4.74	4.75-5.00
WP	155	3.69(0.69)	3.60 - 3.81	1.62-2.30	2.31-2.99	3.00-4.38	4.39-5.00	n/a
FN	155	1.99(0.89)	1.84 - 2.13	n/a	1.00-1.09	1.10-2.88	2.89-3.77	3.78-4.66
FP	155	2.99(0.90)	2.85 - 3.13	1.00-1.18	1.19-2.08	2.09-3.89	3.90-4.79	4.80-5.00
PN	155	1.94(0.85)	1.81 - 2.08	n/a	1.00-1.08	1.09-2.79	2.80-3.64	3.65-4.49
PP	155	3.61(0.86)	3.47 - 3.74	1.03-1.90	1.91-2.74	2.75-4.47	4.48-5.00	n/a

Table 14: Norms by Augmentee Status, Status = Augmentee

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	595	2.59(1.02)	2.51 - 2.67	n/a	1.00-1.56	1.57-3.61	3.62-4.63	4.64-5.00
WP	596	3.49(0.75)	3.43 - 3.55	1.24-1.98	1.99-2.73	2.74-4.24	4.25-4.99	5.00
FN	596	1.97(0.95)	1.89 - 2.04	n/a	1.00-1.01	1.02-2.92	2.93-3.87	3.88-4.82
FP	596	3.04(0.96)	2.97 - 3.12	1.00-1.11	1.12-2.07	2.08-4.00	4.01-4.96	4.97-5.00
PN	596	1.78(0.82)	1.72 - 1.85	n/a	n/a	1.00-2.60	2.61-3.42	3.43-4.24
PP	596	3.44(0.92)	3.37 - 3.52	1.00-1.59	1.60-2.51	2.52-4.36	4.37-5.00	n/a

Table 15: Norms by Augmentee Status, Status = Non-Augmentee

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	2250	2.85(1.09)	2.80 - 2.89	n/a	1.00-1.75	1.76-3.94	3.95-5.00	n/a
WP	2252	3.51(0.77)	3.48 - 3.55	1.20-1.95	1.96-2.73	2.74-4.28	4.29-5.00	n/a
FN	2247	2.02(0.94)	1.98 - 2.06	n/a	1.00-1.07	1.08-2.96	2.97-3.90	3.91-4.84
FP	2243	3.18(0.99)	3.14 - 3.22	1.00-1.19	1.20-2.18	2.19-4.17	4.18-5.00	n/a
PN	2251	1.85(0.84)	1.81 - 1.88	n/a	1.00	1.01-2.69	2.70-3.53	3.54-4.37
PP	2250	3.40(0.91)	3.37 - 3.44	1.00-1.57	1.58-2.48	2.49-4.31	4.32-5.00	n/a

Tables 16 and 17 present the norms for Language of Survey (English and French). In reviewing these norms, the following consideration should be kept in mind. There were translation errors with two of the PDRS items on the French version: The more minor of these two errors was on Item 9, which read "*j' ai eu de la difficulté à réconcilier l' état de dévastation que j 'ai constaté* ***là-bas et*** *ma vie au Canada*" in the French version; careful review suggests that the item should have read "*j'ai eu de la difficulté à réconcilier l'état de dévastation que j'ai constaté* ***outre-mer avec*** *ma vie au Canada*"(emphasis added to distinguish differences in wording).

The more serious translation error occurred on Item 13, which in the English survey read "*I have become more involved in my* ***family*** *relationships*" but in the French version read "*Je suis devenu plus engagé dans mes relations* ***de travail*** (should have read ***familiales***)." The problem with Item 13, which is included in the FP scale, led us to calculate the FP scores for the French surveys in two ways: one with and one without Item 13. We noted no major differences on average scores on the FP scale due to inclusion/exclusion of this item. As such, we report the norms calculated with the inclusion of Item 13 in the FP subscale. Items 9 and 13 have since then been corrected in the French version of the PDRS (see Annex A).

Table 16: Norms by Language of Survey, Language = English

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	2825	2.80(1.08)	2.76 - 2.84	n/a	1.00-1.71	1.72-3.88	3.89-4.96	4.97-5.00
WP	2828	3.50(0.77)	3.47 - 3.52	1.19-1.95	1.96-2.72	2.73-4.27	4.28-5.00	n/a
FN	2822	2.01(0.94)	1.98 - 2.05	n/a	1.00-1.06	1.07-2.95	2.96-3.89	3.90-4.83
FP	2819	3.15(0.99)	3.11 - 3.18	1.00-1.17	1.17-2.15	2.16-4.14	4.15-5.00	n/a
PN	2827	1.83(0.83)	1.80 - 1.86	n/a	n/a	1.00-2.66	2.67-3.49	3.50-4.32
PP	2826	3.40(0.92)	3.37 - 3.44	1.00-1.55	1.56-2.47	2.48-4.32	4.33-5.00	n/a

Table 17: Norms by Language of Survey, Language = French

PDRS	*N*	*Mean (SD)*	*95% Confidence Interval*	*Highly Below Average*	*Below Average*	*Average*	*Above Average*	*Highly Above Average*
WN	158	2.67(0.92)	2.51 - 2.80	n/a	1.00-1.74	1.75-3.59	3.60-4.51	4.52-5.00
WP	158	3.62(0.74)	3.51 - 3.75	1.40-2.13	2.14-2.87	2.88-4.36	4.37-5.00	n/a
FN	158	2.05(0.90)	1.92 - 2.20	n/a	1.00-1.14	1.15-2.95	2.96-3.85	3.86-4.75
FP	157	3.37(0.94)	3.22 - 3.52	1.00-1.48	1.49-2.42	2.43-4.31	4.32-5.00	n/a
PN	158	1.91(0.89)	1.78 - 2.06	n/a	1.00-1.01	1.02-2.80	2.81-3.69	3.70-4.58
PP	158	3.41(0.84)	3.28 - 3.54	1.00-1.72	1.73-2.56	2.57-4.25	4.26-5.00	n/a

Using the PDRS Norms: Comparison of Subgroup Scores to Whole Sample Norms

To provide future end-users of the PDRS with examples of comparing their PDRS data to established norms, we present both visual and statistical comparisons. As our first example, we compared PDRS scores from a specific deployment (Operation ATHENA Phase I Roto 2 [Kabul]) to the norms obtained for the whole sample. The first thing one should do as part of a visual inspection is to compare the subgroup's PDRS subscale means to the norms for the whole CF in order to determine whether the subgroup's experiences are Well Below Average, Below Average, Average, Above Average, or Well Above Average. The mean PDRS scores for this rotation can be found in Table 18 (third column from the left). All of those means fall in the Average category from Table 3. Thus, it can be said that this rotation's post-deployment reintegration experiences are comparable to the typical experiences of most CF members. Ascertaining that a specific group is having a typical or atypical post-deployment reintegration experience compared to most CF members by visually inspecting available norm tables is one way of exploring how similar or different that group is from others.

Table 18: Comparing Scores from a Specific Rotation to Whole Sample Norms

PDRS	*Whole Sample Norms (test value)*	*Mean Score of Comparison Group*	*Mean Difference*	*Std. Deviation*	*t-test*	*Significance*	*Effect Size*
WN	2.80	2.76	-0.04	1.09	-0.86	0.393	0.04
WP	3.50	3.37	-0.13	0.82	-3.62	0.000*	0.16
FN	2.01	1.89	-0.12	0.91	-2.89	0.004*	0.13
FP	3.15	3.07	-0.08	1.03	-1.83	0.068	0.08
PN	1.84	1.57	-0.27	0.67	-9.35	0.000*	0.41
PP	3.40	3.33	-0.07	0.94	-1.73	0.083	0.07

Note: Specific Rotation= Operation ATHENA Phase I Roto 2 [Kabul], * $p < 0.008$. Whole sample norms are from Table 3. Mean Scores are from table 5.

Another way of making a comparison between scores of a specific deployment and established norms is to do formal statistical testing. Statistical comparisons using the one sample t-test revealed that the difference on the PN scale observed when the data were inspected visually was indeed statistically significant ($p = 0.000$) but that additionally, the apparently small differences observed on the WP and FN scales were also statistically significant ($p = 0.000$ and $p = 0.004$, respectively). Overall then, the results showed that compared to the whole sample, the soldiers returning from Operation ATHENA Phase I Roto 2 [Kabul] reported significantly fewer negative reintegration experiences in the family and personal domains but also significantly fewer positive reintegration experiences in the work domain. The effect sizes of .16, .13, and .41 for the differences observed on the WP, FN, and PN scales suggested that those observed on the first two scales were indeed very small (and likely not meaningful in practical terms) but that those observed on the PN scale approached a medium effect size, perhaps requiring closer scrutiny as to why soldiers from this specific deployment reported fewer negative personal reintegration experiences than the whole sample. This is a good example of why it is important to conduct both visual and statistical comparisons. The visual inspection showed that the mean PN score for the Operation ATHENA Phase I Roto 2 [Kabul] group was in the average range of experiences for CF members. However, knowing that their mean score was significantly lower than the average, and that the effect size was moderate, indicates that there might be something important going on that is worthy of further scrutiny.

As our second example, we took a specific subgroup (Regular Forces) from a specific deployment (Operation ATHENA Phase I Roto 2 [Kabul]) and compared their scores on each of the subscales of the PDRS to established norms for that specific subgroup (Regular Forces) from the whole sample. Visual inspection of these data (Table 19, third column, and Table 12) revealed that the subgroup's mean scores on all six PDRS subscales were in the Average range for Regular Force personnel. When comparing the means more directly, the scores on the six PDRS scales for the Regular Force members from Operation ATHENA Phase I Roto 2 [Kabul] were lower but very similar to the norms established for Regular Force members from the whole sample. The only exception, once again, was the PN scale where the magnitude of the difference seemed somewhat larger. Statistical comparisons using the one sample t-test revealed that the differences on the WP, the FN, and the PN scales were all statistically significant ($p = 0.003$, $p = 0.007$, and $p = 0.000$, respectively). The effect sizes of .13, .12, and .38 once again indicated that only the difference on PN scale approached a medium effect size, perhaps requiring closer scrutiny as to why Regular Forces from this specific deployment reported fewer negative personal reintegration experiences than the Regular Forces from the whole sample.

Table 19: Comparing Scores from a Specific Group and Rotation to the Whole Sample

PDRS	*Regular Force Norms (test value)*	*Mean Score of Comparison Group*	*Mean Difference*	*Std. Deviation*	*t-test*	*Significance*	*Effect Size*
WN	2.80	2.77	-0.03	1.10	-0.63	0.529	0.03
WP	3.49	3.38	-0.11	0.82	-2.99	0.003*	0.13
FN	2.01	1.90	-0.11	0.92	-2.70	0.007*	0.12
FP	3.16	3.09	-0.07	1.03	-1.55	0.123	0.07
PN	1.83	1.57	-0.26	0.68	-8.56	0.000*	0.38
PP	3.40	3.35	-0.05	0.92	-1.23	0.219	0.05

Note: Specific Group=Regular Forces, Specific Rotation= Operation ATHENA Phase I Roto 2 [Kabul], * $p < 0.008$. Regular Force norms are from Table 12.

Discussion

The purpose of this technical report was to develop and present to end-users normative data on the PDRS. The PDRS norms included in this report make it possible for end-users in the CF, such as PSOs and commanders, to compare the post-deployment reintegration experiences of a specific unit to the "average" or "typical" post-deployment experiences of CF personnel from several previous operational tours. This technical report provides examples of both a visual, and a simple, statistical method of comparing post-deployment experiences to these "average" or "typical" experiences from previous operational tours. Visual comparisons allow end-users the ability to determine whether a group's post-deployment reintegration experiences are Well Below Average, Below Average, Average, Above Average, or Well Above Average. Statistical comparisons allow for more fine-grained analysis of differences. Visual and statistical comparisons should be used in tandem.

When such comparisons reveal significantly more negative post-deployment experiences in the unit of interest, commanders may choose to provide additional supports to the unit and closely monitor whether or not such supports have the expected beneficial effect. Where comparisons reveal significantly fewer negative (or significant more positive) experiences than usual, commanders may wish to determine which individual, unit, and organizational factors may have helped this particular unit successfully reintegrate into their life in the post-deployment period and apply that information towards the successful reintegration of other units in future tours.

There are a number of limitations that should be considered in reviewing and using the normative PDRS data contained in this report: First, when norms are developed for a new psychological measure, "the value of the normed data … depends on the extent to which the reference sample represents a target population and the extent to which an individual who takes a normed test can be thought of as a member of that population" (Furr & Bacharach, 2008) (p.58). This means that the target population must be defined very clearly and formal steps should be taken to ensure that the reference (study) sample is indeed representative of that population. This typically means using probability sampling to obtain a representative reference (study) sample. In our case, the target population (CF personnel deployed to operational tours) was well-defined; however, our study sample (CF personnel from five rotations of a recent operational tour [Operation ATHENA Phases I and II] who volunteered to respond to the HDO survey), was not obtained using probability sampling. Furthermore, due to logistical limitations (time and resources available for the project), we were not able to conduct a post-hoc assessment of how representative our study sample was of the target population. Thus, although the data used in the development of norms for the PDR in this report represent the largest known dataset on this new measure, the fact remains that our sample is indeed a sample of convenience, and a formal assessment of sample representativeness still needs to be conducted to have confidence that the norms developed for this report are appropriate for use in future operational tours.

Second, in developing norms for new psychological measures such as the PDRS, especially for those measures that will ultimately be used in educational, clinical, or administrative decision making, the characteristic being measured (e.g., intelligence) is typically assumed to be normally distributed in the population. When the actual data on that characteristic deviate from normality, there are a number of sophisticated "*normalization transformation*" (Furr & Bacharach, 2008)

(p.58) procedures that can be employed. These procedures typically include (i) computing percentile rank scores from the observed test scores, (ii) converting the percentile ranks into standard scores, and (iii) computing a converted SD onto an intended metric with a specific mean and standard deviation (Furr & Bacharach, 2008). In our case, the experiences measured by the PDRS are not necessarily assumed to be normally distributed in the Canadian military population; and the norms in the current report are provided for simple comparison purposes (e.g., comparing the post-deployment reintegration experiences of soldiers from current/ongoing deployments to the post-deployment experiences of soldiers from completed/prior deployments). It is neither expected, nor recommended, that the PDRS subscale scores be used in clinical or administrative decision making. Furthermore, end-users (e.g., commanders) typically prefer norms that can be presented in a straightforward and simple manner (rather than norms based on transformed/normalized scores which are not easily interpretable). For all these reasons, and despite some observed deviations from normality in our data, we have not undertaken any of the sophisticated procedures for transforming non-normal data that have been described in the literature on developing norms (Furr & Bacharach, 2008). This pragmatic approach is the same as that taken in prior research on developing norms for other HDO instruments (Brown, 2005).

As a result of the limitations outlined above, comparison of an individual CF member's score to the norms provided in this report, especially for *clinical* or *administrative* decisions, is not recommended. The norms in this report are provided as a "rough" reference point for assessing post-deployment reintegration experiences of *groups* of soldiers (e.g., units) in future operational tours. It should also be kept in mind that in clinical and medical settings, even with norms that have been carefully developed over decades of research, no test should be used in and of itself to determine a psychological outcome such as post-deployment psychological adjustment, in the absence of other relevant information.

Even with these limitations in mind, this report advances the study of post-deployment mental health by providing pragmatically developed norms for a recently developed measure of post-deployment reintegration, the PDRS. These norms can serve as "reference points" for Canadian military researchers in examining the post-deployment experiences of personnel returning from future operational tours. Our findings suggest that, overall, CF personnel returning from recent Operation ATHENA Phase I and II tours (between 2004 and 2007) report more positive than negative post-deployment experiences. Future research should examine whether CF personnel from subsequent Operation ATHENA tours report similar post-deployment experiences. This report does not address the relationship between various positive and negative post-deployment reintegration experiences and common post-deployment mental health problems, such as depression, substance abuse, and post-traumatic stress disorder, though there is evidence that the negative reintegration domains tend to be associated with more adverse outcomes (Blais, et al., 2009). We recommend that future research examine these relationships and attempt to quantify both their magnitude and the directionality. Our research also does not attempt to identify "extreme" groups (e.g., those who score particularly high on the negative or particularly low on the positive PDRS scales); such research is important for identifying groups within the deployed CF population who are at risk for not being able to successfully reintegrate across the work, family and personal domains in the post-deployment period. Similarly, identification of "extreme" groups at the other end of the continuum (i.e., those who score very low on the negative or those who score very high on the positive PDRS scales) is important for identifying groups within the deployed CF population who are particularly resilient; for optimum operational

effectiveness, identification of factors that may be associated with such resilience should be a priority in Canadian military research.

Annex A Post-Deployment Reintegration Scale (PDRS)

There are no right or wrong answers to the following questions. People may have differing views, and we are interested in what *your* experiences are. **Please indicate the extent to which each of the statements below is true for you since returning from OP ATHENA:**

SINCE RETURNING FROM OP ATHENA:	Not at all	Slightly	Somewhat	Very	Completely
1. I am glad I went on the tour.	O	O	O	O	O
2. I feel closer to my family.	O	O	O	O	O
3. Putting the events of the tour behind me has been tough.	O	O	O	O	O
4. There has been tension in my family relationships.	O	O	O	O	O
5. I find military bureaucracy more frustrating.	O	O	O	O	O
6. I am more aware of problems in the world.	O	O	O	O	O
7. I am applying job-related skills I learned during my deployment.	O	O	O	O	O
8. I have become more responsive to my family's needs.	O	O	O	O	O
9. I have had difficulty reconciling the devastation I saw overseas with life in Canada.	O	O	O	O	O
10. I am better able to deal with stress.	O	O	O	O	O
11. I feel the tour has had a negative impact on my personal life.	O	O	O	O	O
12. I feel my current work duties are less meaningful.	O	O	O	O	O
13. I have become more involved in my family relationships.	O	O	O	O	O
14. I have a better understanding of other cultures.	O	O	O	O	O
15. I feel my family has had difficulty understanding me.	O	O	O	O	O
16. I have been confused about my experiences during the tour.	O	O	O	O	O
17. Day to Day work tasks seem tedious.	O	O	O	O	O
18. The tour has put a strain on my family life.	O	O	O	O	O
19. I have realized how well off we are in Canada.	O	O	O	O	O
20. I feel I am a better soldier.	O	O	O	O	O
21. It has been hard to get used to being in Canada again.	O	O	O	O	O
22. Garrison life has been boring.	O	O	O	O	O
23. I have realized how important my family is to me.	O	O	O	O	O
24. I have a greater appreciation of the value of life.	O	O	O	O	O
25. Getting back "into sync" with family life has been hard.	O	O	O	O	O
26. Being back in Canada has been a bit of a culture shock.	O	O	O	O	O
27. I am proud of having served overseas.	O	O	O	O	O
28. I have a greater willingness to be with my family.	O	O	O	O	O
29. I have a greater appreciation of the conveniences taken for granted in Canada.	O	O	O	O	O
30. I feel a lower sense of accomplishment at work.	O	O	O	O	O
31. I feel my family resented my absence.	O	O	O	O	O
32. I have considered leaving the military.	O	O	O	O	O
33. I more fully appreciate the rights and freedoms taken for granted in Canada.	O	O	O	O	O
34. I have developed stronger friendships.	O	O	O	O	O
35. Focusing on things other than the tour has been difficult.	O	O	O	O	O
36. I more fully appreciate the time I spend with my family.	O	O	O	O	O

SONDAGE DE RÉINTÉGRATION APRÈS-DÉPLOIEMENT

Les questions suivantes n'ont ni bonnes ni mauvaises réponses. Les répondant(e)s peuvent avoir différentes opinions et nous sommes intéressés à savoir ce que *vous* avez retiré de *votre* expérience. Veuillez préciser dans quelle mesure les énoncés ci-dessous sont vrais *pour vous* (en lien avec votre récente affectation) **au cours du dernier mois**.

AU COURS DU DERNIER MOIS :	**Pas vrai du tout**	**Un peu vrai**	**Plutôt vrai**	**Très vrai**	**Tout à fait vrai**
1. Je suis content(e) d'avoir pris part à cette affectation.	O	O	O	O	O
2. Je me suis rapproché(e) de ma famille.	O	O	O	O	O
3. Il m'a été difficile de laisser derrière moi les événements de cette affectation.	O	O	O	O	O
4. Il y a eu de la tension dans les relations avec ma famille.	O	O	O	O	O
5. Je trouve la bureaucratie militaire plus frustrante.	O	O	O	O	O
6. Je suis davantage au courant des problèmes qui sévissent dans le monde.	O	O	O	O	O
7. Je mets en application les compétences professionnelles que j'ai acquises pendant mon déploiement.	O	O	O	O	O
8. Je suis devenu(e) plus sensible aux besoins de ma famille.	O	O	O	O	O
9. J'ai eu de la difficulté à réconcilier l'état de dévastation que j'ai constaté outre-mer avec ma vie au Canada.	O	O	O	O	O
10. Je suis plus en mesure de faire face au stress.	O	O	O	O	O
11. Je pense que l'affectation a eu une incidence négative sur ma vie personnelle.	O	O	O	O	O
12. Je pense que mes fonctions actuelles sont moins significatives.	O	O	O	O	O
13. Je suis devenu plus engagé dans mes relations familiales.	O	O	O	O	O
14. Je comprends davantage les autres cultures.	O	O	O	O	O
15. Je pense que ma famille a eu de la difficulté à me comprendre.	O	O	O	O	O
16. J'ai été troublé(e) par les expériences que j'ai vécues pendant l'affectation.	O	O	O	O	O
17. Les tâches quotidiennes me paraissent fastidieuses.	O	O	O	O	O
18. L'affectation a mis ma vie familiale à l'épreuve.	O	O	O	O	O
19. J'ai réalisé à quel point nous vivons dans l'aisance au Canada.	O	O	O	O	O
20. Je pense que je suis un meilleur soldat.	O	O	O	O	O
21. Il m'a été difficile de m'habituer à être de nouveau au Canada.	O	O	O	O	O
22. La vie en garnison a été ennuyeuse.	O	O	O	O	O
23. J'ai réalisé à quel point ma famille est importante pour moi.	O	O	O	O	O
24. Je reconnais davantage la valeur de la vie.	O	O	O	O	O
25. Il m'a été difficile d'être de nouveau « en synchronisation » avec ma vie de famille.	O	O	O	O	O
26. Mon retour au Canada a été quelque peu un « choc culturel ».	O	O	O	O	O
27. Je suis fier(ère) d'avoir été en poste outre-mer.	O	O	O	O	O
28. Je désire davantage être avec ma famille.	O	O	O	O	O
29. J'apprécie davantage les commodités tenues pour acquises au Canada.	O	O	O	O	O
30. J'ai moins l'impression de m'accomplir dans mon travail.	O	O	O	O	O
31. Je pense que ma famille me reproche mon absence.	O	O	O	O	O
32. J'ai songé à quitter la vie militaire.	O	O	O	O	O
33. J'apprécie beaucoup plus les droits et les libertés tenu(e)s pour acquis(es) au Canada.	O	O	O	O	O
34. J'ai développé des amitiés plus solides.	O	O	O	O	O
35. Il m'a été difficile de me concentrer sur autre chose que cette affectation.	O	O	O	O	O
36. J'apprécie davantage le temps que je passe avec ma famille.	O	O	O	O	O

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List of symbols/abbreviations/acronyms/initialisms

[Enter list here, if applicable. If not, delete the page.]

CF	Canadian Forces
CI	Confidence Interval
DGMPRA	Director General Military Personnel Research & Analysis
DRDC	Defence Research & Development Canada
DRDKIM	Director Research and Development Knowledge and Information Management
FN	Family Negative subscale of the PDRS
FP	Family Positive subscale of the PDRS
HDO	Human Dimensions of Operations
ISAF	International Security Assistance Force
NATO	North Atlantic Treaty Organization
PDRS	Post-Deployment Reintegration Scale
PN	Personal Negative subscale of the PDRS
PP	Personal Positive subscale of the PDRS
PSO	Personnel Selection Officer
R&D	Research & Development
WN	Work Negative subscale of the PDRS
SD	Standard Deviation
SE	Standard Error
WP	Work Positive subscale of the PDRS
U.N.	United Nations

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UNCLASSIFIED

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Development of Norms for the Post−deployment Reintegration Scale (U)
Élaboration de normes pour l'Échelle de mesure de la réintégration après déploiement (U)

4. AUTHORS (First name, middle initial and last name. If military, show rank, e.g. Maj. John E. Doe.)

Deniz Fikretoglu; ; Donald R. McCreary

5. DATE OF PUBLICATION (Month and year of publication of document.)	6a NO. OF PAGES (Total containing information, including Annexes, Appendices, etc.)	6b. NO. OF REFS (Total cited in document.)
September 2010	27	16

7. DESCRIPTIVE NOTES (The category of the document, e.g. technical report, technical note or memorandum. If appropriate, enter the type of document, e.g. interim, progress, summary, annual or final. Give the inclusive dates when a specific reporting period is covered.)

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10a. ORIGINATOR'S DOCUMENT NUMBER (The official document number by which the document is identified by the originating activity. This number must be unique to this document) DRDC Toronto TR 2010−168	10b. OTHER DOCUMENT NO(s). (Any other numbers under which may be assigned this document either by the originator or by the sponsor.)

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(U) For military personnel, the time period that immediately follows return from military operations (i.e., the post–deployment reintegration period) is an extremely important window of opportunity for readjusting to in–garrison work roles, for re–connecting with family, and for putting the events of the tour in perspective. Recognizing the importance of successful post–deployment reintegration to optimal operational readiness, Canadian military researchers developed the Army Post–Deployment Reintegration Scale (PDRS) (Blais, Thompson, & McCreary, 2009). The PDRS measures positive and negative post–deployment experiences of returning military members in three domains of interest: work, family, and personal. The goal of the current study was to develop norms for the PDRS, using commonly accepted procedures established in psychological testing. The norms we developed suggest that so far, CF members who have participated in recent operations report more positive than negative reintegration experiences. Additional findings show that where post–deployment reintegration differences between specific subgroups within the CF exist, they are rather small in magnitude. The implications of these findings, as well as future uses of the PDRS norms in CF screening and research programs are discussed.

(U) Pour le personnel militaire, la période qui suit immédiatement le retour du théâtre des opérations militaires (c.–à–d. la période de réintégration après déploiement) est une occasion extrêmement importante de se rajuster au travail en garnison, de renouer avec la famille et de mettre en perspective les événements survenus durant l'affectation. Reconnaissant l'importance d'une réintégration après déploiement réussie pour une disponibilité opérationnelle optimale, les chercheurs militaires canadiens ont élaboré une Échelle de mesure de la réintégration après un déploiement (EMRD) de l'Armée de terre (Blais, Thompson et McCreary, 2009). L'EMRD permet de mesurer à trois niveaux les expériences positives et négatives après déploiement des membres des FC revenant du théâtre des opérations: le travail, la famille et les relations personnelles. Le but de la présente étude est d'élaborer des normes pour l'Échelle de mesure de la réintégration après déploiement (ERAD), en utilisant des procédures généralement acceptées établies dans les tests psychologiques. Ces normes peuvent être utilisées pour comparer les expériences positives et négatives de réintégration de différents groupes de membres des FC afin de déterminer si ces groupes ont une expérience de réintégration supérieure à la moyenne, moyenne ou inférieure à la moyenne dans chacun des six secteurs. Lorsqu'il y a des différences de réintégration après déploiement entre des sous–groupes particuliers des FC, elles sont plutôt de nature mineure. Cependant, cela n'empêche pas qu'il puisse y avoir de grandes différences au sein des groupes du personnel des FC qui se déploieront dans des théâtres d'opérations futurs.

14. KEYWORDS, DESCRIPTORS or IDENTIFIERS (Technically meaningful terms or short phrases that characterize a document and could be helpful in cataloguing the document. They should be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location may also be included. If possible keywords should be selected from a published thesaurus, e.g. Thesaurus of Engineering and Scientific Terms (TEST) and that thesaurus identified. If it is not possible to select indexing terms which are Unclassified, the classification of each should be indicated as with the title.)

(U) postdeployment; reintegration; norm development

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